

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-113150

(43)Date of publication of application : 16.04.2002

(51)Int.Cl.

A63F 5/04

(21)Application number : 2000-306038

(71)Applicant : ARUZE CORP

(22)Date of filing : 05.10.2000

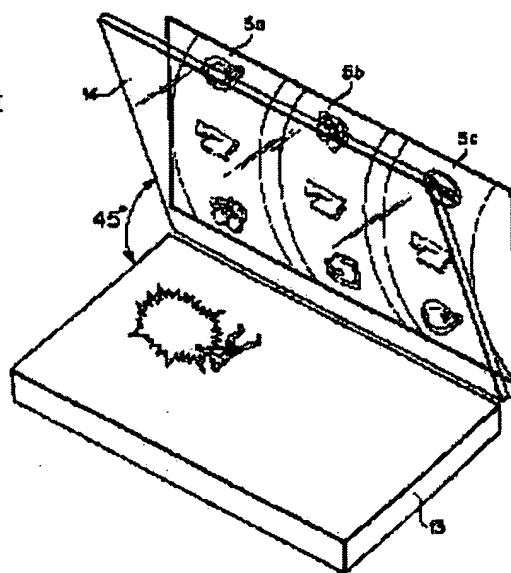
(72)Inventor : KISHI TETSUO

(54) SLOT MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a slot machine, with which a directed indication concerning play can be enjoyed without damaging the original playability of a slot machine.

SOLUTION: Between variable display means (reels 5a-5c) and a directed image display means (liquid crystal display device 13), which is arranged at a prescribed angle to the variable display means (reels 5a-5c), for displaying a directed image, a half mirror 14 is disposed at a prescribed inclination angle. The directed image displayed on the directed image display means (liquid crystal display device 13) is displayed while being overlapped on picture patterns displayed on the variable display means (reels 5a-5c) by the half mirror 14.



LEGAL STATUS

[Date of request for examination]

26.11.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than withdrawal the examiner's decision of rejection or application converted registration]

[Date of final disposal for application] 11.07.2006

[Patent number]

[Date of registration]

[Number of appeal against examiner's
decision of rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The fluctuation display means for indicating two or more patterns required for a game by fluctuation, and the initiation means for making the fluctuation display of the pattern in this fluctuation display means start, In the slot machine equipped with the means for stopping for stopping the fluctuation display of the pattern in said fluctuation display means The production image display means for displaying a production image countered and arranged with said fluctuation display means and the predetermined include angle, It has the half mirror arranged with whenever [predetermined tilt-angle] between said fluctuation display means and said production image display means. With this half mirror The slot machine characterized by piling up and displaying the production image displayed on said production image display means to the pattern displayed on said fluctuation display means.

[Claim 2] The production image displayed on said production image display means is a slot machine according to claim 1 characterized by becoming said fluctuation display means from a series of animation images relevant to the motion of a pattern by which it is indicated by fluctuation.

[Claim 3] Said half mirror is a slot machine according to claim 1 or 2 characterized by consisting of a polarization beam splitter.

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the slot machine which can fluctuation display two or more patterns required for a game.

[0002]

[Description of the Prior Art] The conventional slot machine is equipped with the case which has the front door which can be opened and closed, prepares a display window in the front face of a front door, and is making the periphery front face of two or more reels arranged inside a case face a display window, respectively.

[0003] On such a conventional slot machine, if the start condition of a game is ready and a game person operates a start switch by throwing in a game medal, two or more patterns which two or more reels rotated and were drawn on the surface of the reel will move at high speed. And if a game person operates the stop switch corresponding to each reel, rotation of each reel will stop and the deactivate indication of two or more patterns drawn on the front face of each reel will be carried out.

[0004] Here, when the combination of the pattern by which the deactivate indication was carried out turns into a predetermined combination, the game medal as a prize pays out. Moreover, the combination of the pattern by which the deactivate indication was carried out makes a start condition the predetermined thing specially become a winning-a-prize mode, and an advantageous special game is made to perform for a game person as compared with a general game.

[0005] Moreover, there are some which were equipped with the display for performing the production display about a game separately from a reel in the conventional slot machine. This display is constituted by the liquid crystal display etc. and the demonstration of the game in a slot machine, the production image accompanying advance of a game, etc. are displayed.

[0006]

[Problem(s) to be Solved by the Invention] However, on the conventional slot machine mentioned above, since the display for performing production about a game was prepared separately from a reel, it was not able to gaze at a reel and a display at coincidence. For this reason, when the game person was observing the pattern displayed on a reel, even if it performed the production display in the display, there was a case where it was unappealable at all to a game person. In order that a game person might take notice of rotation of a reel in the state of the so-called reach especially, it was difficult to enjoy the production display in a display.

[0007] On the other hand, when the game person had taken notice of only the production display in a display, the fun of a game might decrease, without the ability enjoying the game of slot machine original -- a stop switch cannot be operated to suitable timing.

[0008] This invention aims at offering the slot machine which can enjoy the production display about a game, without having been proposed in view of the situation mentioned above, and spoiling the game nature of slot machine original.

[0009]

[Means for Solving the Problem] The slot machine of this invention is equipped with the following focus in order to attain the purpose mentioned above.

[0010] Namely, a fluctuation display means for the slot machine of this invention to indicate two or more patterns required for a game by fluctuation, In the slot machine equipped with the initiation means for making the fluctuation display of the pattern in this fluctuation display means start, and the means for stopping for stopping the fluctuation display of the pattern in said fluctuation display means The production image display means for displaying a production image countered and arranged with said fluctuation display means and the predetermined include angle, It has the half mirror arranged with whenever [predetermined tilt-angle] between said fluctuation display means and said production image display means. With this half mirror It is characterized by piling up and displaying the production image displayed on said production image display means to the pattern displayed on said fluctuation display means.

[0011] In this case, the production image displayed on said production image display means can be considered as a series of animation images relevant to the motion of a pattern by which it is indicated by fluctuation at said fluctuation display means. Moreover, it is possible to constitute said half mirror by the polarization beam splitter.

[0012]

[Embodiment of the Invention] Hereafter, based on a drawing, the slot machine concerning the operation gestalt of this invention is explained. <Slot machine> drawing 1 is the front view showing the outline configuration of the slot machine concerning the operation gestalt of this invention. Moreover, drawing 2 is the perspective view of the liquid crystal display formed in the slot machine, and a half mirror.

[0013] The slot machine 1 concerning the operation gestalt of this invention is equipped with the case 3 which has the front door 2 which can be opened and closed in a front face as shown in drawing 1 . The periphery front face of reel 5 a-c of the three front face which prepared three display window 4 a-c lining up side-by-side above the center mostly, and have been arranged inside a case 3 to each display window 4 a-c has attended the front door 2, respectively.

[0014] moreover, the medal input port 7 for throwing in the bed switch 6 for throwing in the game medal with which a game is presented under display window 4 a-c within limits by which the credit was carried out predetermined number of sheets every, and the game medal with which a game is presented is formed.

[0015] Moreover, stop switch 10 a-c for stopping the C/P switch 8 for changing whether the credit of the game medal which the game person won is carried out, or it pays out, the start switch 9 for making rotations of reel 5 a-c start all at once a condition [an injection of a game medal], and rotation of reel 5 a-c according to an individual is prepared in the front face of the front door 2 in which it is located under the bed switch 6 grade.

[0016] Furthermore, the medal saucer 11 for receiving the game medal paid out as a prize was formed, and as the medal saucer 11 was attended, the medal expenditure opening 12 is formed in the lower part of the front door 2.

[0017] A rotation drive is carried out by the stepping motor (not shown), and each above-mentioned reel 5 a-c is sticking on the periphery front face the reel tape on which two or more kinds of patterns were displayed at intervals of predetermined and which has translucency, respectively. The classes of pattern are "7", "BAR", a "watermelon", a "cherry", a "plum", etc., and 21 patterns are displayed every reel 5 a-c, respectively. In addition, the number of the pattern displayed on the class of pattern and each reel 5 a-c can be changed suitably, and can be carried out. For example, although the class of pattern was mentioned above, it can use a "bell", "Orange", a "person", an "animal", a "fish", "JAC", etc. for others, and it gives two or more kinds of coloring for every pattern further, and you may make it distinguish a pattern.

[0018] As it is located ahead [of reel 5 a-c / bottom], the liquid crystal display 13 to which the display was turned up is arranged in the interior of the <liquid crystal display> case 3. This liquid crystal display 13 is equipment which functions as a production image display means, and displays a production image to compensate for rotation and halt actuation of reel 5 a-c.

[0019] In addition, as long as a production image display means is not restricted to a liquid crystal display 13 but it can display a production image, you may be what kind of equipment, for example, it is also possible to use other displays, such as EL display, a plasma display, and a CRT display. Moreover, that what is necessary is to counter with reel 5 a-c and a predetermined include angle, and to just be arranged, ahead [of reel 5 a-c / bottom] the location of a liquid crystal display 13 is not restricted, but can make a location suitably the top front of reel 5 a-c etc.

[0020] Between <half mirror> reel 5 a-c and a liquid crystal display 13, as shown in drawing 2, toward the front of a slot machine 1, a half mirror 14 inclines aslant [about 45], and is arranged. As for this half mirror 14, that permeability can pile up the production image displayed on a liquid crystal display 13 ahead of the pattern displayed on reel 5 a-c by being about 50%. In addition, whenever [permeability / of a half mirror 14 / and tilt-angle] can be changed suitably, and can be carried out.

[0021] Moreover, when a liquid crystal display 13 constitutes a production image display means, since output light from this liquid crystal display 13 is considered as polarization, it is desirable to use PBS (polarization beam splitter) which can about 100% reflect the visible ray from a liquid crystal display 13 as a half mirror 14. Since the beam of light from a liquid crystal display 13 does not penetrate upwards by using PBS as a half mirror 14, while being able to use efficiently the beam of light from a liquid crystal display 13, it becomes unnecessary thus, to form the shield for covering the beam of light penetrated upwards etc.

[0022] In this case, a half mirror 14 can be constituted by sticking an PBS film on the surface of a glass plate. Moreover, the permeability of PBS compares the brightness of both at the time of compounding the visible ray from reel 5 a-c, and the visible ray from a liquid crystal display 13, and sets it as a just right combination.

[0023] Moreover, when using PBS as a half mirror 14, it is desirable to attach the polarizing plate for making the visible ray from reel 5 a-c penetrate about 100% in PBS to the front-face side of reel 5 a-c.

[0024] The example of production image display is explained based on <production image display>, next drawing 3 -11. The explanatory view of the production image with which the explanatory view of a pattern in which drawing 3, and 6 and 9 are displayed on reel 5 a-c, drawing 4, and 7 and 10 are displayed on a liquid crystal display 13, drawing 5, and 8 and 11 are the explanatory views of the pattern compounded with the half mirror 14, and a production image.

[0025] If the conditions of game initiation are ready and the start switch 9 is operated, each reel 5 a-c will start rotation all at once. And actuation of stop switch 10 a-c stops rotation of each corresponding reel 5 a-c. Hereafter, production image display when halt actuation of each reel 5 a-c is performed in order of left-hand side reel 5a, central reel 5b, and right-hand side reel 5c is explained. In addition, drawing 3 - drawing 11 show the case where each reel 5 a-c stops so that the combination of the pattern by which a deactivate indication is carried out to each reel 5 a-c may turn into combination of "great success" from the so-called reach condition.

[0026] If stop switch 10a for stopping left-hand side reel 5a is operated, left-hand side reel 5a will stop, and three patterns will be displayed on a vertical list (drawing 3). In the example shown in drawing 3, the deactivate indication of the pattern "7" is carried out in the center of a vertical list. While the boxer which has let out punch is displayed on a liquid crystal display 13 at this time, the ring of the light which expresses an impact to the point of the hand which let out punch is displayed (drawing 4).

[0027] Here, the beam of light from reel 5 a-c penetrates a half mirror 14, and the beam of light from a liquid crystal display 13 is reflected by the half mirror 14 toward the front. For this reason, it seems that the impact ran to the pattern "7" (pattern of the center of the patterns displayed on three vertical lists) which a boxer's punch hit to a game person (drawing 5).

[0028] Then, if stop switch 10b for stopping central reel 5b is operated, central reel 5b will stop and three patterns will be displayed on a vertical list (drawing 6). In the example shown in drawing 6, the deactivate indication of the pattern "7" is carried out in the center of a vertical list. thus, the reel 5 of left-hand side and a center -- if a and b stop, while the ring of the light surrounding the pattern concerned is displayed on the location of a pattern "7" and "7" where a boxer's punch hit by the liquid crystal display 13, the figure to which a boxer fights against the pattern of the right-hand side which is

the last pattern will be displayed on it (drawing 7). For this reason, while the stopped pattern "7" and "7" shine, a boxer seems to aim at the last pattern to a game person (drawing 8).

[0029] Therefore, it can advertize having become the so-called reach to a game person, and a game person can raise the hope for a pattern stopping in the combination of "great success."

[0030] Then, if stop switch 10c for stopping right-hand side reel 5c is operated, right-hand side reel 5c will stop, and three patterns will be displayed on a vertical list (drawing 9). In the example shown in drawing 9 , the deactivate indication of the pattern "7" is carried out in the center of a vertical list. At this time, a burster trimmer stacker feature of light is displayed on the profile of a pattern "7", "7", and "7" by the liquid crystal display 13. Furthermore, since the combination of the pattern by which the deactivate indication was carried out in all reel 5 a-c was set to "7" which is the combination of "great success", "7", and "7", the figure of the boxer which falls back, and the alphabetic character of "BIG CHANCE" are displayed on a liquid crystal display 13 (drawing 10).

[0031] For this reason, while the stopped pattern "7", "7", and "7" shine, a boxer seems to have lost fighting with a game person to a game person (drawing 11). Therefore, a game person defeats fighting with a boxer, production which obtained "great success" can be performed and a game person can fully experience the joy which was "becoming it a great success."

[0032]

[Effect of the Invention] As explained above, on the slot machine of this invention, the production image displayed on a production image display means can be piled up and displayed with a half mirror to the pattern displayed on a fluctuation display means. Therefore, a game person can enjoy the production about a game, without spoiling the game nature of slot machine original, since the production image displayed on a production image display means as the pattern displayed on a fluctuation display means can be viewed to coincidence.

[0033] Moreover, stage effects can be further heightened by using the production image displayed on a production image display means as a series of animation images relevant to the motion of a pattern by which it is indicated by fluctuation at a fluctuation display means.

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

TECHNICAL FIELD

[Field of the Invention] This invention relates to the slot machine which can fluctuation display two or more patterns required for a game.

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art] The conventional slot machine is equipped with the case which has the front door which can be opened and closed, prepares a display window in the front face of a front door, and is making the periphery front face of two or more reels arranged inside a case face a display window, respectively.

[0003] On such a conventional slot machine, if the start condition of a game is ready and a game person operates a start switch by throwing in a game medal, two or more patterns which two or more reels rotated and were drawn on the surface of the reel will move at high speed. And if a game person operates the stop switch corresponding to each reel, rotation of each reel will stop and the deactivate indication of two or more patterns drawn on the front face of each reel will be carried out.

[0004] Here, when the combination of the pattern by which the deactivate indication was carried out turns into a predetermined combination, the game medal as a prize pays out. Moreover, the combination of the pattern by which the deactivate indication was carried out makes a start condition the predetermined thing specially become a winning-a-prize mode, and an advantageous special game is made to perform for a game person as compared with a general game.

[0005] Moreover, there are some which were equipped with the display for performing the production display about a game separately from a reel in the conventional slot machine. This display is constituted by the liquid crystal display etc. and the demonstration of the game in a slot machine, the production image accompanying advance of a game, etc. are displayed.

[0006]

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, on the slot machine of this invention, the production image display displayed on a production image display means can be piled up and displayed with a half mirror to the pattern displayed on a fluctuation display means. Therefore, a game person can enjoy the production about a game, without spoiling the game nature of slot machine original, since the production image displayed on a production image display means as the pattern displayed on a fluctuation display means can be viewed to coincidence.

[0033] Moreover, stage effects can be further heightened by using the production image displayed on a production image display means as a series of animation images relevant to the motion of a pattern by which it is indicated by fluctuation at a fluctuation display means.

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, on the conventional slot machine mentioned above, since the display for performing production about a game was prepared separately from a reel, it was not able to gaze at a reel and a display at coincidence. For this reason, when the game person was observing the pattern displayed on a reel, even if it performed the production display in the display, there was a case where it was unappealable at all to a game person. In order that a game person might take notice of rotation of a reel in the state of the so-called reach especially, it was difficult to enjoy the production display in a display.

[0007] On the other hand, when the game person had taken notice of only the production display in a display, the fun of a game might decrease, without the ability enjoying the game of slot machine original -- a stop switch cannot be operated to suitable timing.

[0008] This invention aims at offering the slot machine which can enjoy the production display about a game, without having been proposed in view of the situation mentioned above, and spoiling the game nature of slot machine original.

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] The slot machine of this invention is equipped with the following focus in order to attain the purpose mentioned above.

[0010] Namely, a fluctuation display means for the slot machine of this invention to indicate two or more patterns required for a game by fluctuation, In the slot machine equipped with the initiation means for making the fluctuation display of the pattern in this fluctuation display means start, and the means for stopping for stopping the fluctuation display of the pattern in said fluctuation display means The production image display means for displaying a production image countered and arranged with said fluctuation display means and the predetermined include angle, It has the half mirror arranged with whenever [predetermined tilt-angle] between said fluctuation display means and said production image display means. With this half mirror It is characterized by piling up and displaying the production image displayed on said production image display means to the pattern displayed on said fluctuation display means.

[0011] In this case, the production image displayed on said production image display means can be considered as a series of animation images relevant to the motion of a pattern by which it is indicated by fluctuation at said fluctuation display means. Moreover, it is possible to constitute said half mirror by the polarization beam splitter.

[0012]

[Embodiment of the Invention] Hereafter, based on a drawing, the slot machine concerning the operation gestalt of this invention is explained. <Slot machine> drawing 1 is the front view showing the outline configuration of the slot machine concerning the operation gestalt of this invention. Moreover, drawing 2 is the perspective view of the liquid crystal display formed in the slot machine, and a half mirror.

[0013] The slot machine 1 concerning the operation gestalt of this invention is equipped with the case 3 which has the front door 2 which can be opened and closed in a front face as shown in drawing 1. The periphery front face of reel 5 a-c of the three front face which prepared three display window 4 a-c lining up side-by-side above the center mostly, and have been arranged inside a case 3 to each display window 4 a-c has attended the front door 2, respectively.

[0014] moreover, the medal input port 7 for throwing in the bed switch 6 for throwing in the game medal with which a game is presented under display window 4 a-c within limits by which the credit was carried out predetermined number of sheets every, and the game medal with which a game is presented is formed.

[0015] Moreover, stop switch 10 a-c for stopping the C/P switch 8 for changing whether the credit of the game medal which the game person won is carried out, or it pays out, the start switch 9 for making rotations of reel 5 a-c start all at once a condition [an injection of a game medal], and rotation of reel 5 a-c according to an individual is prepared in the front face of the front door 2 in which it is located under the bed switch 6 grade.

[0016] Furthermore, the medal saucer 11 for receiving the game medal paid out as a prize was formed, and as the medal saucer 11 was attended, the medal expenditure opening 12 is formed in the lower part of the front door 2.

[0017] A rotation drive is carried out by the stepping motor (not shown), and each above-mentioned reel 5 a-c is sticking on the periphery front face the reel tape on which two or more kinds of patterns were displayed at intervals of predetermined and which has translucency, respectively. The classes of pattern are "7", "BAR", a "watermelon", a "cherry", a "plum", etc., and 21 patterns are displayed every reel 5 a-c, respectively. In addition, the number of the pattern displayed on the class of pattern and each reel 5 a-c can be changed suitably, and can be carried out. For example, although the class of pattern was mentioned above, it can use a "bell", "Orange", a "person", an "animal", a "fish", "JAC", etc. for others, and it gives two or more kinds of coloring for every pattern further, and you may make it distinguish a pattern.

[0018] As it is located ahead [of reel 5 a-c / bottom], the liquid crystal display 13 to which the display was turned up is arranged in the interior of the <liquid crystal display> case 3. This liquid crystal display 13 is equipment which functions as a production image display means, and displays a production image to compensate for rotation and halt actuation of reel 5 a-c.

[0019] In addition, as long as a production image display means is not restricted to a liquid crystal display 13 but it can display a production image, you may be what kind of equipment, for example, it is also possible to use other displays, such as EL display, a plasma display, and a CRT display. Moreover, that what is necessary is to counter with reel 5 a-c and a predetermined include angle, and to just be arranged, ahead [of reel 5 a-c / bottom] the location of a liquid crystal display 13 is not restricted, but can make a location suitably the top front of reel 5 a-c etc.

[0020] Between <half mirror> reel 5 a-c and a liquid crystal display 13, as shown in drawing 2, toward the front of a slot machine 1, a half mirror 14 inclines aslant [about 45], and is arranged. As for this half mirror 14, that permeability can pile up the production image displayed on a liquid crystal display 13 ahead of the pattern displayed on reel 5 a-c by being about 50%. In addition, whenever [permeability / of a half mirror 14 / and tilt-angle] can be changed suitably, and can be carried out.

[0021] Moreover, when a liquid crystal display 13 constitutes a production image display means, since output light from this liquid crystal display 13 is considered as polarization, it is desirable to use PBS (polarization beam splitter) which can about 100% reflect the visible ray from a liquid crystal display 13 as a half mirror 14. Since the beam of light from a liquid crystal display 13 does not penetrate upwards by using PBS as a half mirror 14, while being able to use efficiently the beam of light from a liquid crystal display 13, it becomes unnecessary thus, to form the shield for covering the beam of light penetrated upwards etc.

[0022] In this case, a half mirror 14 can be constituted by sticking an PBS film on the surface of a glass plate. Moreover, the permeability of PBS compares the brightness of both at the time of compounding the visible ray from reel 5 a-c, and the visible ray from a liquid crystal display 13, and sets it as a just right combination.

[0023] Moreover, when using PBS as a half mirror 14, it is desirable to attach the polarizing plate for making the visible ray from reel 5 a-c penetrate about 100% in PBS to the front-face side of reel 5 a-c.

[0024] The example of production image display is explained based on <production image display>, next drawing 3 -11. The explanatory view of the production image with which the explanatory view of a pattern in which drawing 3, and 6 and 9 are displayed on reel 5 a-c, drawing 4, and 7 and 10 are displayed on a liquid crystal display 13, drawing 5, and 8 and 11 are the explanatory views of the pattern compounded with the half mirror 14, and a production image.

[0025] If the conditions of game initiation are ready and the start switch 9 is operated, each reel 5 a-c will start rotation all at once. And actuation of stop switch 10 a-c stops rotation of each corresponding reel 5 a-c. Hereafter, production image display when halt actuation of each reel 5 a-c is performed in order of left-hand side reel 5a, central reel 5b, and right-hand side reel 5c is explained. In addition, drawing 3 - drawing 11 show the case where each reel 5 a-c stops so that the combination of the pattern by which a deactivate indication is carried out to each reel 5 a-c may turn into combination of "great success" from the so-called reach condition.

[0026] If stop switch 10a for stopping left-hand side reel 5a is operated, left-hand side reel 5a will stop, and three patterns will be displayed on a vertical list (drawing 3). In the example shown in drawing 3,

the deactivate indication of the pattern "7" is carried out in the center of a vertical list. While the boxer which has let out punch is displayed on a liquid crystal display 13 at this time, the ring of the light which expresses an impact to the point of the hand which let out punch is displayed (drawing 4).

[0027] Here, the beam of light from reel 5 a-c penetrates a half mirror 14, and the beam of light from a liquid crystal display 13 is reflected by the half mirror 14 toward the front. For this reason, it seems that the impact ran to the pattern "7" (pattern of the center of the patterns displayed on three vertical lists) which a boxer's punch hit to a game person (drawing 5).

[0028] Then, if stop switch 10b for stopping central reel 5b is operated, central reel 5b will stop and three patterns will be displayed on a vertical list (drawing 6). In the example shown in drawing 6 , the deactivate indication of the pattern "7" is carried out in the center of a vertical list. thus, the reel 5 of left-hand side and a center -- if a and b stop, while the ring of the light surrounding the pattern concerned is displayed on the location of a pattern "7" and "7" where a boxer's punch hit by the liquid crystal display 13, the figure to which a boxer fights against the pattern of the right-hand side which is the last pattern will be displayed on it (drawing 7). For this reason, while the stopped pattern "7" and "7" shine, a boxer seems to aim at the last pattern to a game person (drawing 8).

[0029] Therefore, it can advertize having become the so-called reach to a game person, and a game person can raise the hope for a pattern stopping in the combination of "great success."

[0030] Then, if stop switch 10c for stopping right-hand side reel 5c is operated, right-hand side reel 5c will stop, and three patterns will be displayed on a vertical list (drawing 9). In the example shown in drawing 9 , the deactivate indication of the pattern "7" is carried out in the center of a vertical list. At this time, a burster trimmer stacker feature of light is displayed on the profile of a pattern "7", "7", and "7" by the liquid crystal display 13. Furthermore, since the combination of the pattern by which the deactivate indication was carried out in all reel 5 a-c was set to "7" which is the combination of "great success", "7", and "7", the figure of the boxer which falls back, and the alphabetic character of "BIG CHANCE" are displayed on a liquid crystal display 13 (drawing 10).

[0031] For this reason, while the stopped pattern "7", "7", and "7" shine, a boxer seems to have lost fighting with a game person to a game person (drawing 11). Therefore, a game person defeats fighting with a boxer, production which obtained "great success" can be performed and a game person can fully experience the joy which was "becoming it a great success."

[0032]

[Translation done.]

* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The front view showing the outline configuration of the slot machine concerning this invention

[Drawing 2] The perspective view of a liquid crystal display and a half mirror

[Drawing 3] The explanatory view of the pattern displayed on a reel

[Drawing 4] The explanatory view of the production image displayed on a liquid crystal display

[Drawing 5] The explanatory view of the pattern compounded with the half mirror, and a production image

[Drawing 6] The explanatory view of the pattern displayed on a reel

[Drawing 7] The explanatory view of the production image displayed on a liquid crystal display

[Drawing 8] The explanatory view of the pattern compounded with the half mirror, and a production image

[Drawing 9] The explanatory view of the pattern displayed on a reel

[Drawing 10] The explanatory view of the production image displayed on a liquid crystal display

[Drawing 11] The explanatory view of the pattern compounded with the half mirror, and a production image

[Description of Notations]

1 Slot Machine

2 Front Door

3 Case

4 Display Window

5 Reel

6 Bed Switch

7 Medal Input Port

8 C/P Switch

9 Start Switch

10 Stop Switch

11 Medal Saucer

12 Medal Expenditure Opening

13 Liquid Crystal Display

14 Half Mirror

[Translation done.]

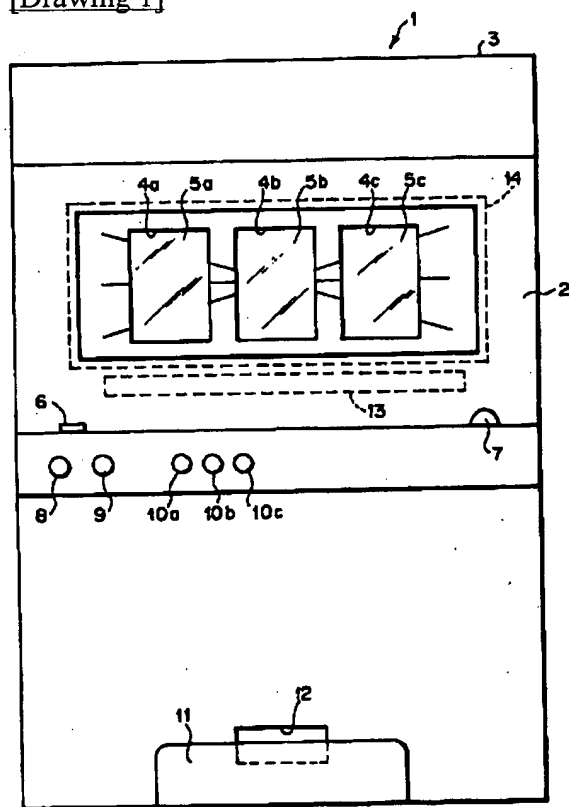
* NOTICES *

JPO and INPIT are not responsible for any damages caused by the use of this translation.

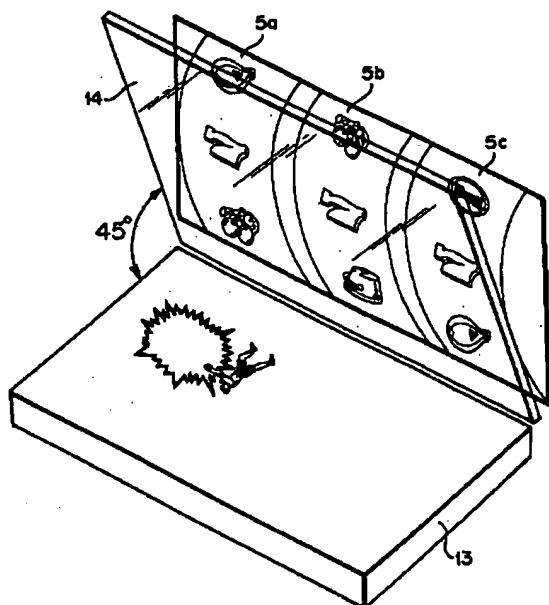
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

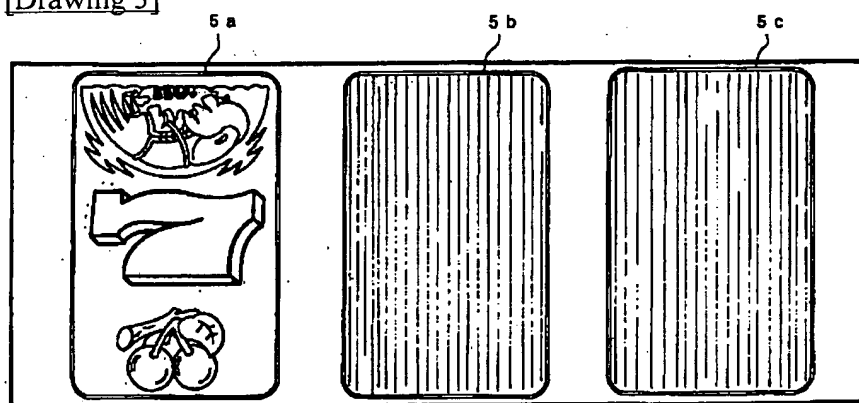
[Drawing 1]



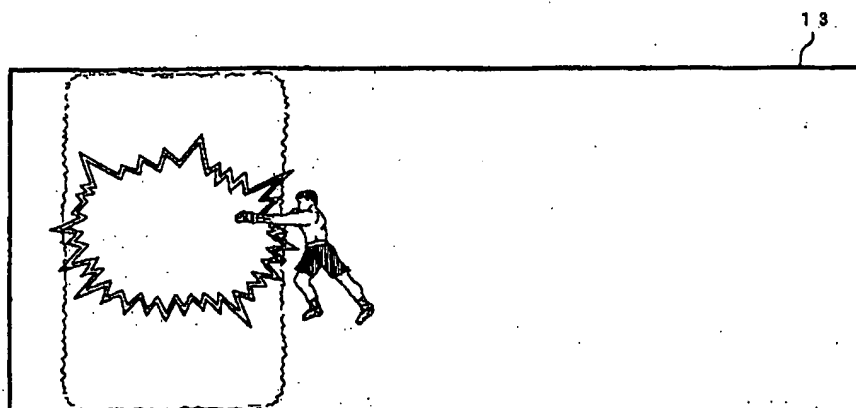
[Drawing 2]



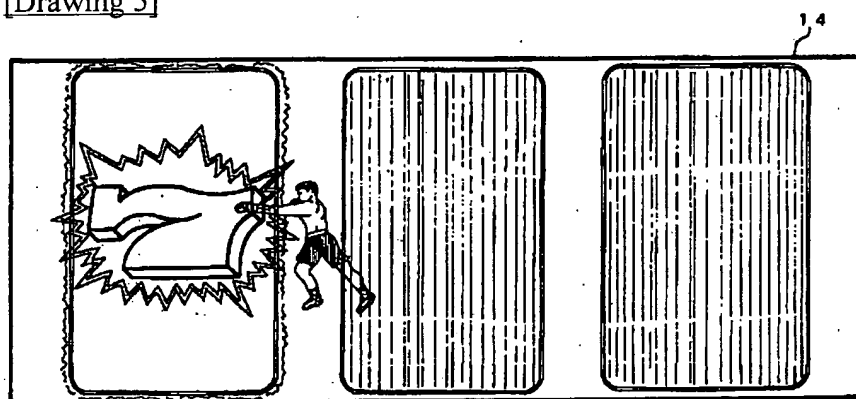
[Drawing 3]



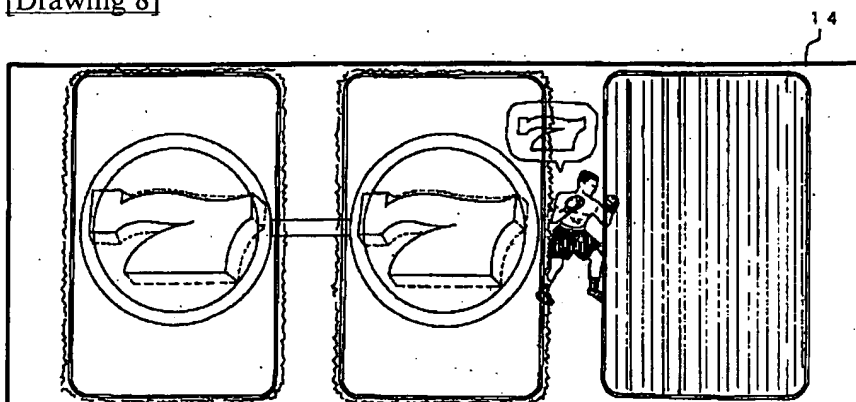
[Drawing 4]



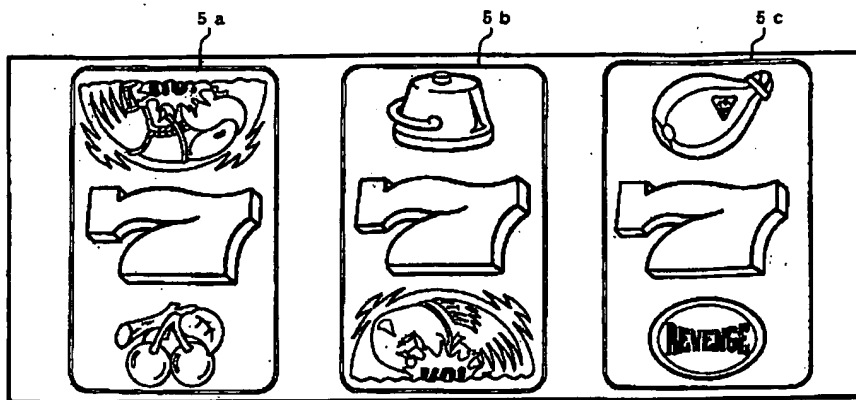
[Drawing 5]



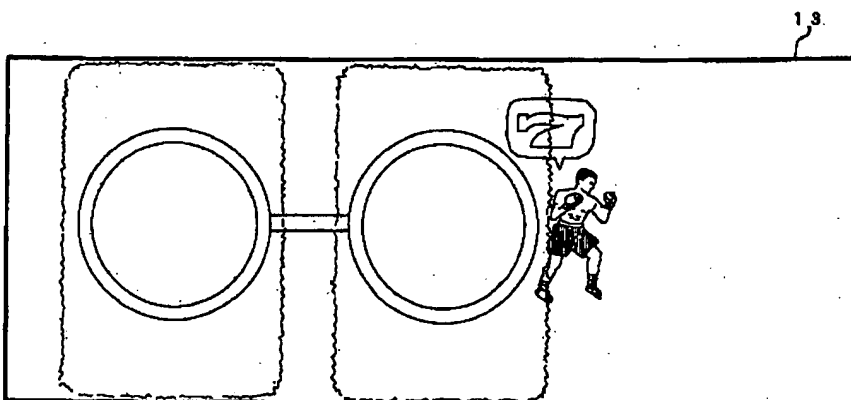
[Drawing 8]



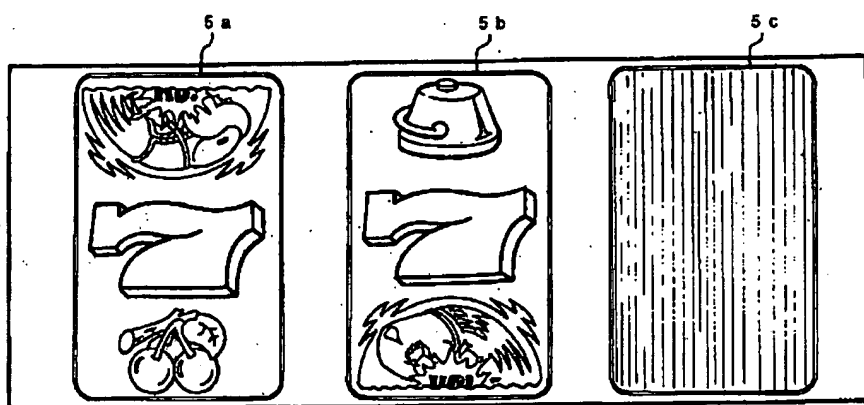
[Drawing 6]



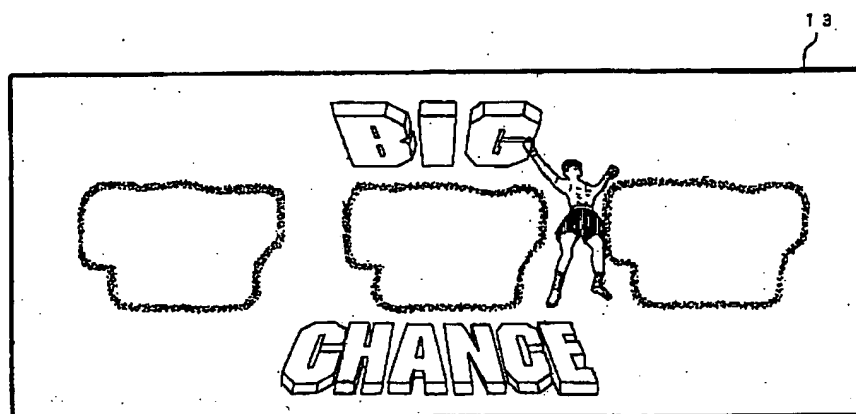
[Drawing 7]



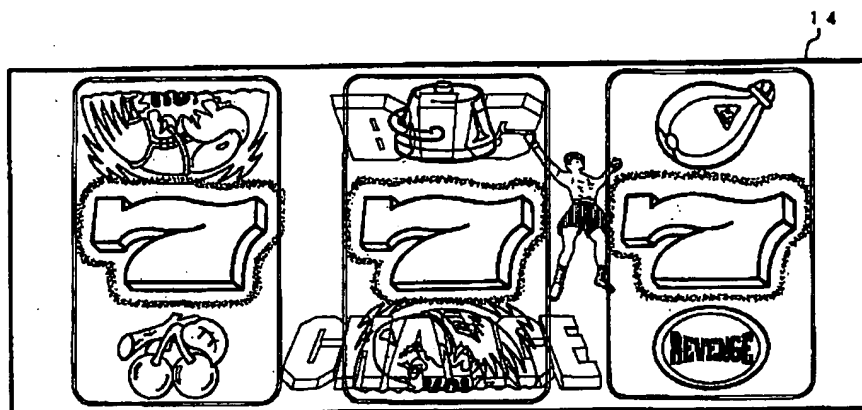
[Drawing 9]



[Drawing 10]



[Drawing 11]



[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開2002-113150

(P2002-113150A)

(43) 公開日 平成14年4月16日 (2002.4.16)

(51) Int. Cl.	識別記号	F I	7-73-1* (参考)
A 63 F 5/04	5 1 2	A 63 F 5/04	5 1 2 D 5 1 2 C

審査請求 未請求 請求項の数 3 O L (全 9 頁)

(21) 出願番号 特願2000-308038 (P2000-308038)

(22) 出願日 平成12年10月5日 (2000.10.5)

(71) 出願人 598098526

アルゼ株式会社

東京都江東区有明3丁目1番地25

(72) 発明者 岸 哲生

東京都江東区有明3-1-25

(74) 代理人 100087984

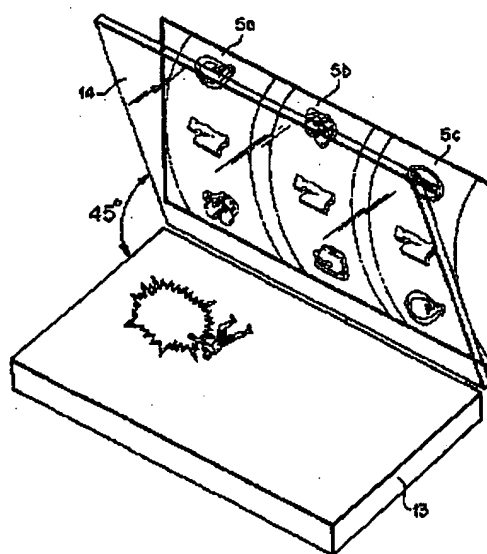
弁理士 川野 宏

(54) 【発明の名称】 スロットマシン

(57) 【要約】

【課題】 スロットマシン本来の遊技性を損なうことなく、遊技に関する演出表示を楽しむことが可能なスロットマシンを提供する。

【解決手段】 変動表示手段（リール5a～c）と、該変動表示手段（リール5a～c）と所定の角度をもって配設された演出画像を表示するための演出画像表示手段（液晶表示装置13）との間に、所定の傾斜角度でハーフミラー14を配設する。ハーフミラー14により、変動表示手段（リール5a～c）に表示される図柄に対して、演出画像表示手段（液晶表示装置13）に表示される演出画像を重ね合わせて表示する。



JP,2002-113150,A

◎ STANDARD ○ ZOOM-UP ROTATION No Rotation ☒ REVERSAL

RELOAD

PREVIOUS PAGE

NEXT PAGE

DETAIL

(2)

特開2002-113150

1

2

【特許請求の範囲】

【請求項1】 遊技に必要な複数の図柄を変動表示するための変動表示手段と、該変動表示手段における図柄の変動表示を開始させるための開始手段と、前記変動表示手段における図柄の変動表示を停止させるための停止手段とを備えたスロットマシンにおいて、

前記変動表示手段と所定の角度をもって対向して配設された、演出画像を表示するための演出画像表示手段と、前記変動表示手段と前記演出画像表示手段との間に所定の傾斜角度をもって配設されたハーフミラーとを備え、該ハーフミラーにより、前記変動表示手段に表示される図柄に対して、前記演出画像表示手段に表示される演出画像を重ね合わせて表示することを特徴とするスロットマシン。

【請求項2】 前記演出画像表示手段に表示される演出画像は、前記変動表示手段に変動表示される図柄の動きに関連した一連のアニメーション画像からなることを特徴とする請求項1記載のスロットマシン。

【請求項3】 前記ハーフミラーは、偏光ビームスプリッタからなることを特徴とする請求項1または2記載のスロットマシン。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、遊技に必要な複数の図柄を変動表示可能なスロットマシンに関する。

【0002】

【従来の技術】従来のスロットマシンは、開閉可能な前面扉を有する筐体を備えており、前面扉の前面に表示窓を設け、表示窓には、筐体の内部に配置した複数のリールの外周表面をそれぞれ露出させている。

【0003】このような従来のスロットマシンでは、遊技メダルを投入することにより遊技の開始条件が整い、遊技者がスタートスイッチを操作すると、複数のリールが回転してリールの表面に描かれた複数の図柄が高速で移動する。そして、遊技者が各リールに対応したストップスイッチを操作すると、各リールの回転が停止し、各リールの表面に描かれた複数の図柄が停止表示される。

【0004】ここで、停止表示された図柄の組み合わせが所定の組み合わせとなった場合には、賞としての遊技メダルが払い出される。また、停止表示された図柄の組み合わせが所定の特別入賞態様となったことを開始条件として、一般遊技と比較して遊技者にとって有利な特別遊技を行わせるようになっている。

【0005】また、従来のスロットマシンには、リールとは別個に、遊技に関する演出表示を行うための表示部を備えたものがある。この表示部は、液晶表示装置等により構成され、スロットマシンにおける遊技のデモンストラレーションや、遊技の進行に伴う演出画像等が表示されるようになっている。

【0006】

【発明が解決しようとする課題】しかしながら、上述した従来のスロットマシンでは、遊技に関する演出を行うための表示部がリールとは別個に設けられているため、リールと表示部を同時に注視することができなかった。このため、遊技者がリールに表示される図柄に注目していると、表示部において演出表示を行ったとしても、遊技者に対して何らアピールすることができない場合があった。特に、いわゆるリーチ状態では、遊技者がリールの回転に注目するため、表示部における演出表示を楽しむ余裕がなかった。

【0007】一方、遊技者が表示部における演出表示にのみ注目してしまった場合には、適切なタイミングでストップスイッチの操作を行うことができない等、スロットマシン本来の遊技を楽しむことができず、遊技の面白さが低減してしまうこともあった。

【0008】本発明は、上述した事情に鑑み提案されたもので、スロットマシン本来の遊技性を損なうことなく、遊技に関する演出表示を楽しむことが可能なスロットマシンを提供することを目的とする。

【0009】

【課題を解決するための手段】本発明のスロットマシンは、上述した目的を達成するため、以下の特徴点を備えている。

【0010】すなわち、本発明のスロットマシンは、遊技に必要な複数の図柄を変動表示するための変動表示手段と、該変動表示手段における図柄の変動表示を開始させるための開始手段と、前記変動表示手段における図柄の変動表示を停止させるための停止手段とを備えたスロットマシンにおいて、前記変動表示手段と所定の角度をもって対向して配設された、演出画像を表示するための演出画像表示手段と、前記変動表示手段と前記演出画像表示手段との間に所定の傾斜角度をもって配設されたハーフミラーとを備え、該ハーフミラーにより、前記変動表示手段に表示される図柄に対して、前記演出画像表示手段に表示される演出画像を重ね合わせて表示することを特徴とするものである。

【0011】この場合、前記演出画像表示手段に表示される演出画像は、前記変動表示手段に変動表示される図柄の動きに関連した一連のアニメーション画像とすることが可能である。また、前記ハーフミラーを偏光ビームスプリッタにより構成することが可能である。

【0012】

【発明の実施の形態】以下、図面に基いて、本発明の実施形態に係るスロットマシンを説明する。＜スロットマシン＞図1は、本発明の実施形態に係るスロットマシンの概略構成を示す正面図である。また、図2は、スロットマシン内に設けた液晶表示装置およびハーフミラーの斜視図である。

【0013】本発明の実施形態に係るスロットマシン1は、図1に示すように、前面に開閉可能な前面扉2を有

(3)

特開2002-113150

3

する筐体3を備えている。前面扉2には、その前面のほぼ中央より上部に、横並びに3個の表示窓4a～cを設け、各表示窓4a～cには、筐体3の内部に配置した3個のリール5a～cの外周表面がそれぞれ臨んでいる。

【0014】また、表示窓4a～cの下方には、クレジットされた範囲内で遊技に供する遊技メダルを所定枚数ずつ投入するためのベットスイッチ6と、遊技に供する遊技メダルを投入するためのメダル投入口7を設けている。

【0015】また、ベットスイッチ6等の下方に位置する前面扉2の前面には、遊技者が獲得した遊技メダルをクレジットするか払い出すかを切り替えるためのC/Pスイッチ8と、遊技メダルの投入を条件としてリール5a～cの回転を一斉に開始させるためのスタートスイッチ9と、リール5a～cの回転を個別に停止させるためのストップスイッチ10a～cを設けている。

【0016】さらに、前面扉2の下部には、賞として払い出された遊技メダルを受け入れるためのメダル受皿11を設け、メダル受皿11に臨むようにして、メダル払出口12を設けている。

【0017】上記した各リール5a～cはそれぞれステッピングモータ（図示せず）により回転駆動され、その外周表面には、複数種類の図柄が所定間隔で表示された、透光性を有するリールテープを貼り付けている。図柄の種類は、例えば、「7」、「BAR」、「スイカ」、「チェリー」、「プラム」等であり、各リール5a～c毎にそれぞれ21個の図柄が表示されている。なお、図柄の種類および各リール5a～cに表示する図柄の個数は、適宜変更して実施することができる。例えば、図柄の種類は、上述したもの他に「ベル」、「オレンジ」、「人物」、「動物」、「魚」、「JAC」等を使用することができ、さらに各図柄毎に複数種類の彩色を施して図柄を区別するようにしてもよい。

【0018】＜液晶表示装置＞筐体3の内部には、リール5a～cの下側前方に位置するようにして、表示部を上方に向けた液晶表示装置13が配設されている。この液晶表示装置13は、演出画像表示手段として機能する装置で、リール5a～cの回転および停止動作に合わせて演出画像を表示するようになっている。

【0019】なお、演出画像表示手段は液晶表示装置13に限られず、演出画像を表示できればどのような装置であってもよく、例えば、EL表示装置、プラズマ表示装置、CRT表示装置等の他の表示装置を用いることも可能である。また、液晶表示装置13の位置は、リール5a～cと所定の角度をもって対向して配設されていればよく、リール5a～cの下側前方には限られず、リール5a～cの上側前方等の適宜位置とすることができる。

【0020】＜ハーフミラー＞リール5a～cと液晶表示装置13との間には、図2に示すように、ハーフミラ

4

ー14がスロットマシン1の前方に向かって斜め約45度に傾いて配設されている。このハーフミラー14は、その透過率が約50%となっており、リール5a～cに表示される図柄の前方に、液晶表示装置13に表示される演出画像を重ね合わせることができる。なお、ハーフミラー14の透過率および傾斜角度は、適宜変更して実施することができる。

【0021】また、演出画像表示手段を液晶表示装置13により構成する場合には、この液晶表示装置13からの出力光が偏光とされていることから、ハーフミラー14として、液晶表示装置13からの可視光線をほぼ100%反射可能なPBS（偏光ビームスプリッター）を使用することが好ましい。このようにPBSをハーフミラー14として使用することにより、液晶表示装置13からの光線が上方へ透過しないので、液晶表示装置13からの光線を効率よく利用できるとともに、上方へ透過した光線を遮蔽するための遮蔽板等を設ける必要がなくなる。

【0022】この場合、ハーフミラー14は、PBSフィルムをガラス板の表面に貼り付けることにより構成することができる。また、PBSの透過率は、リール5a～cからの可視光線と液晶表示装置13からの可視光線を合成した際の両者の明るさを比較して、ちょうどよい組み合わせに設定する。

【0023】また、ハーフミラー14としてPBSを使用する場合には、リール5a～cの前面側に、リール5a～cからの可視光線をPBSにおいてほぼ100%透過させるための偏光板を取り付けることが好ましい。

【0024】＜演出画像表示＞次に、図3～11に基づいて、演出画像表示の具体例を説明する。図3、6、9は、リール5a～cに表示される図柄の説明図、図4、7、10は、液晶表示装置13に表示される演出画像の説明図、図5、8、11は、ハーフミラー14により合成された図柄および演出画像の説明図である。

【0025】遊技開始の条件が整いスタートスイッチ9が操作されると、各リール5a～cが一斉に回転を開始する。そして、ストップスイッチ10a～cが操作されると、対応する各リール5a～cの回転が停止する。以下、左側のリール5a、中央のリール5b、右側のリール5cの順に各リール5a～cの停止操作が行われた場合における演出画像表示を説明する。なお、図3～図11は、各リール5a～cに停止表示される図柄の組み合わせが、いわゆるリーチ状態から「大当たり」の組み合わせとなるように、各リール5a～cが停止した場合を示している。

【0026】左側のリール5aを停止させるためのストップスイッチ10aが操作されると、左側のリール5aが停止して縦並びに3個の図柄が表示される（図3）。図3に示す例では、縦並びの中央に図柄「7」が停止表示されている。このとき、液晶表示装置13には、パン

特開2002-113150

(4)

5

チを繰り出しているボクサーが表示されるとともに、パンチを繰り出した手の先に衝撃を表す光の輪が表示される(図4)。

【0027】ここで、リール5a~cからの光線はハーフミラー14を透過し、液晶表示装置13からの光線はハーフミラー14により前方に向かって反射される。このため遊技者には、ボクサーのパンチが当たった図柄「7」(縦並びに3個表示される図柄のうちの中央の図柄)に衝撃が走ったように見える(図5)。

【0028】続いて中央のリール5bを停止させるためのストップスイッチ10bが操作されると、中央のリール5bが停止して縦並びに3個の図柄が表示される(図6)。図6に示す例では、縦並びの中央に図柄「7」が停止表示されている。このように、左側および中央のリール5a, bが停止すると、液晶表示装置13には、ボクサーのパンチが当たった図柄「7」「7」の位置に、当該図柄を囲む光の輪が表示されるとともに、ボクサーが最後の図柄である右側の図柄に立ち向かう姿が表示される(図7)。このため、遊技者には、停止した図柄「7」「7」が光り輝くとともに、ボクサーが最後の図柄を狙っているように見える(図8)。

【0029】したがって、いわゆるリーチとなったことを遊技者に対してアピールすることができ、遊技者は「大当たり」の組み合わせで図柄が停止することへの期待感を高めることができる。

【0030】続いて右側のリール5cを停止させるためのストップスイッチ10cが操作されると、右側のリール5cが停止して縦並びに3個の図柄が表示される(図9)。図9に示す例では、縦並びの中央に図柄「7」が停止表示されている。このとき、液晶表示装置13には、図柄「7」「7」「7」の輪郭に光の縁取りが表示される。さらに、全てのリール5a~cにおいて停止表示された図柄の組み合わせが「大当たり」の組み合わせである「7」「7」「7」となったため、液晶表示装置13には、後方に倒れ込むボクサーの姿と「BIG CHANCE」の文字が表示される(図10)。

【0031】このため、遊技者には、停止した図柄「7」「7」「7」が光り輝くとともに、ボクサーが遊技者との戦いに敗れたように見える(図11)。したがって、遊技者がボクサーとの戦いに勝利し、「大当たり」を勝ち取ったような演出を行うことができ、遊技者は「大当たり」となった喜びを十分に味わうことができる。

【0032】

6

【発明の効果】以上説明したように、本発明のスロットマシンでは、ハーフミラーにより、変動表示手段に表示される図柄に対して、演出画像表示手段に表示される演出画像表示を重ね合わせて表示することができる。したがって、遊技者は、変動表示手段に表示される図柄と、演出画像表示手段に表示される演出画像を同時に目視することができるので、スロットマシン本来の遊技性を損なうことなく、遊技に関する演出を楽しむことができる。

【0033】また、演出画像表示手段に表示される演出画像を、変動表示手段に変動表示される図柄の動きに関連した一連のアニメーション画像とすることにより、演出効果をさらに高めることができる。

【図面の簡単な説明】

【図1】本発明に係るスロットマシンの概略構成を示す正面図

【図2】液晶表示装置およびハーフミラーの斜視図

【図3】リールに表示される図柄の説明図

【図4】液晶表示装置に表示される演出画像の説明図

【図5】ハーフミラーにより合成された図柄および演出画像の説明図

【図6】リールに表示される図柄の説明図

【図7】液晶表示装置に表示される演出画像の説明図

【図8】ハーフミラーにより合成された図柄および演出画像の説明図

【図9】リールに表示される図柄の説明図

【図10】液晶表示装置に表示される演出画像の説明図

【図11】ハーフミラーにより合成された図柄および演出画像の説明図

【符号の説明】

1 スロットマシン

2 前面扉

3 筐体

4 表示窓

5 リール

6 ベットスイッチ

7 メダル投入口

8 C/Pスイッチ

9 スタートスイッチ

10 ストップスイッチ

11 メダル受皿

12 メダル払出口

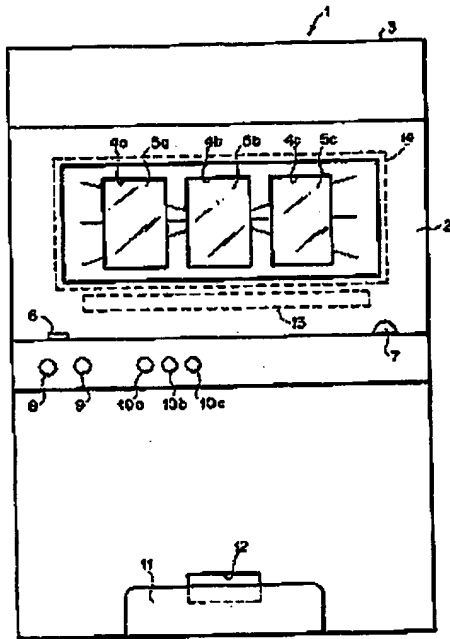
13 液晶表示装置

14 ハーフミラー

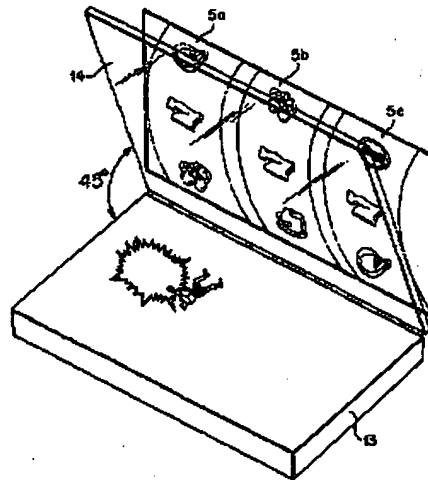
(5)

特開2002-113150

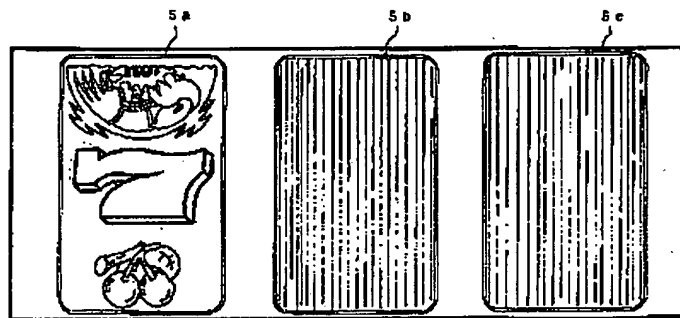
【図1】



【図2】



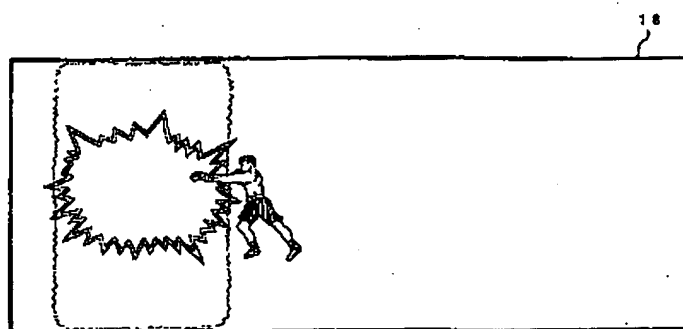
【図3】



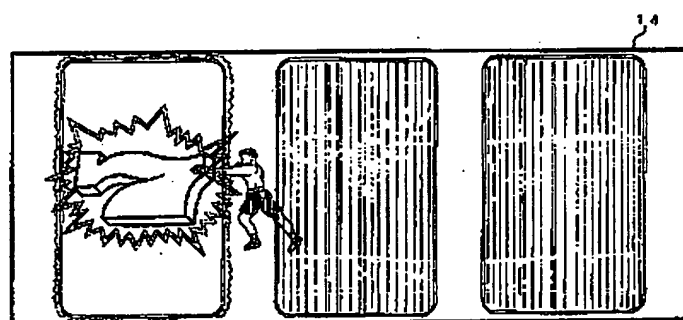
(5)

特開2002-113150

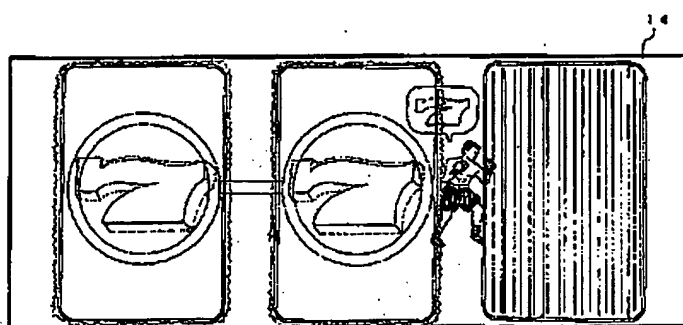
【図4】



【図5】



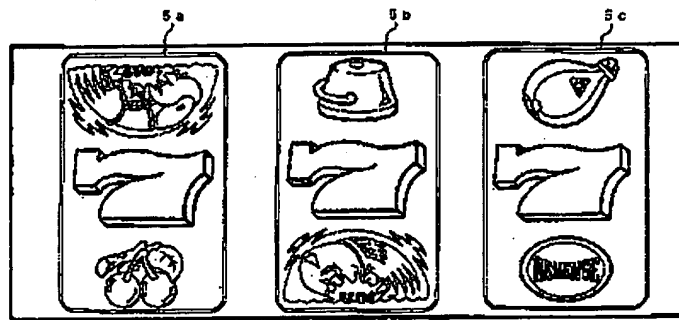
【図8】



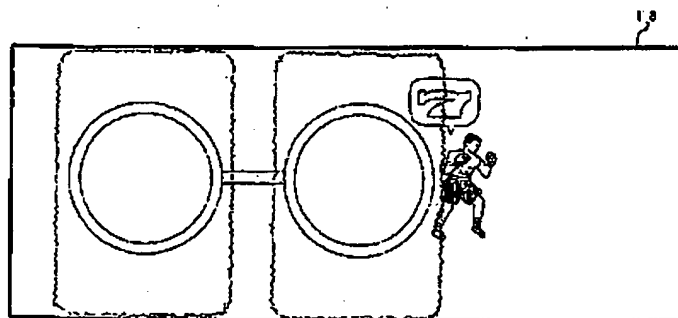
(7)

特開2002-113150

【図6】



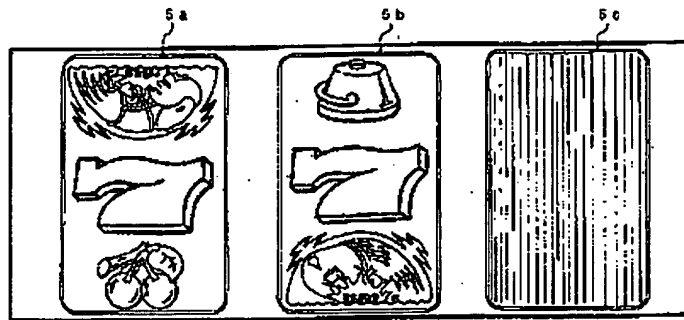
【図7】



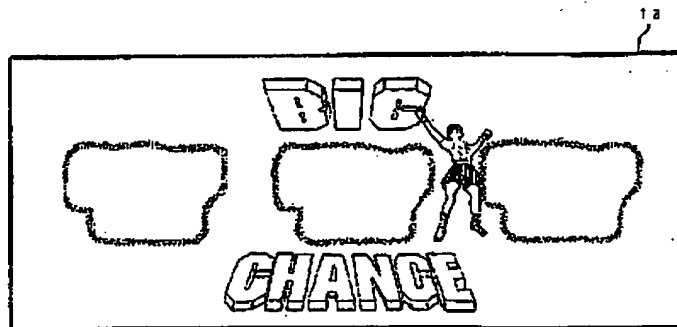
(8)

特開2002-113150

【図9】



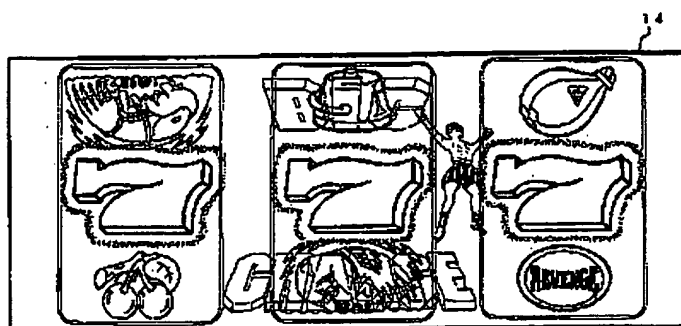
【図10】



(9)

特開2002-113150

【図11】



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	10/697,027-Conf. # 1099
				Filing Date	October 31, 2003
				First Named Inventor	Kazuo OKADA
				Art Unit	3714
				Examiner Name	R. Hsu
Sheet	1	of	2	Attorney Docket Number	SHO-0043

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AA	US 4,371,870	02/01/1983	Michael A. BIFERNO	
	AB	US 4,562,433	12/31/1985	Michael A. BIFERNO	
	AC	US 4,718,672	01/12/1988	Kazuo OKADA	
	AD	US 4,756,414	07/12/1988	Charles L. MOTT	
	AE	US 4,976,429	12/11/1990	Dietmar NAGEL	
	AF	US 4,998,804	03/12/1991	Kenji HORIUCHI	
	AG	US 5,152,529	10/06/1992	Kazuo OKADA	
	AH	US 5,258,844	11/02/1993	Jin NAKAYAMA et al.	
	AI	US 5,372,745	12/13/1994	Kazuo YOSHINAGA et al.	
	AJ	US 5,375,043	12/20/1994	Makoto TOKUNAGA	
	AK	US 5,636,101	06/03/1997	Glen D. BONSALE et al.	
	AL	US 5,667,439	09/16/1997	Kazuo OKADA	
	AM	US 5,691,788	11/25/1997	Dong-gyu KIM	
	AN	US 5,695,188	12/09/1997	Kazuyoshi ISHIBASHI	
	AO	US 5,697,843	12/16/1997	Jon MANSHIP et al.	
	AP	US 5,725,428	03/10/1998	Klaus ACHMÜLLER	
	AQ	US 5,745,199	04/28/1998	Motoyuki SUZUKI et al.	
	AR	US 5,752,881	05/19/1998	Haruo INOUE	
	AS	US 5,768,095	06/16/1998	Fusanobu NAKAMURA et al.	
	AT	US 5,836,819	11/17/1998	Shouhachi UGAWA	
	AU	US 5,934,672	08/10/1999	Randy D. SINES et al.	
	AV	US 6,135,884	10/24/2000	Joseph R. HEDRICK et al.	
	AW	US 6,181,301 B1	01/30/2001	Kazuhiro INOBUCHI et al.	
	AX	US 6,219,228 B1	04/17/2001	Ming-Shen M. SUN	
	AY	US 2001/0050736 A1	12/13/2001	Jeong-Hwan LEE et al.	
	AZ	US 2002/0063816 A1	05/30/2002	Fusanobu NAKAMURA et al.	
	BA	US 2003/0016313 A1	01/23/2003	Seung-Chul JEONG	
	BB	US 6,517,433 B2	02/11/2003	Timothy C. LOOSE et al.	
	BC	US 2003/0060269 A1	03/27/2003	Craig PAULSEN et al.	
	DD	US 2003/0087690 A1	05/08/2003	Timothy C. LOOSE et al.	
	BE	US 2003/0130028 A1	07/10/2003	Eiji AIDA et al.	
	BF	US 2003/0162579 A1	08/28/2003	Michael GAUSELMANN	
	BG	US 2003/0184690 A1	10/02/2003	Akifumi OGIWARA et al.	
	BH	US 2004/0048646 A1	03/11/2004	Martin VISOCNIK	
	BI	US 6,705,611 B2	03/16/2004	Yoshihito KATO	
	BJ	US 6,802,575	10/12/2004	Harry P. LEE	
	BK	US 6,817,946 B2	11/16/2004	Satoshi MOTEGI et al.	
	BL	US 6,820,875 B1	11/23/2004	Joseph R. HEDRICK et al.	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--